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Our ref.:
Our date: 13.10.2021

Your ref.:
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Draft decision - Price regulation for fixed wireless access

1 Introduction

1.1 Background

On 20 December 2018, the Norwegian Communications Authority (Nkom) adopted a decision (the Market 3b Decision) concerning the designation of Telenor ASA (Telenor) as a provider with significant market power, and an order concerning special obligations in the wholesale market for central access to fixed access networks (Market 3b).

In Chapter 2.4.4.2 of the market analysis, which was prepared in connection with the Market 3b Decision, Nkom drew the general conclusion that wholesale access to fixed radio access networks is included in Market 3b.

During 2019, Telenor launched the products “Hjemmebredbånd Mobil” (Home Broadband Mobile) in the private market and “Bredbånd Bedrift Mobil” (Broadband Business Mobile) in the business market. Both products are now called “Trådløst Bredbånd (Wireless Broadband) and are offered as replacements for DSL-based broadband in parts of Telenor’s network where Telenor is discontinuing copper access.

Nkom has assessed Telenor’s “Trådløst Bredbånd” products in the light of the regulation in Market 3b. Below, the term “fixed wireless access” (FWA) is used.

1.2 FWA Decision

In a decision on 2 September 2020 (the FWA Decision), Nkom concluded that wholesale access to FWA that enables access seekers’ delivery of retail products corresponding to Telenor’s retail products is a form of fixed radio access included in Market 3b. On this basis, Nkom required

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Telenor to meet any reasonable request for access to FWA. The FWA Decision furthermore shows that the non-discrimination requirement is applied to FWA access in the same way as for other access products in Market 3b. It is also apparent that requirements to prepare reference offers and their content apply to Telenor's wholesale FWA offers. However, there is no requirement to publish the price schedule in the reference offer, or detailed cover information in the form of lists of addresses.

In the FWA Decision, Nkom has assessed the need to regulate the price Telenor can charge for the implementation of interfaces for FWA access. A disproportionately high price for establishing access is liable to act as an entry barrier for potential access seekers and thereby undermine the purpose of the access obligation. In order to remedy this potential competition problem, Nkom has found it necessary to set the requirement that Telenor's prices for implementing the interface for access to FWA must be reasonable. In the FWA Decision, Nkom has also set certain guidelines for the assessment of reasonableness.

The FWA Decision also stipulates that access prices for the establishment and subscription for the individual customer connection must be non-discriminatory, cf. Chapter 5.1 of the FWA Decision. In particular, the requirement entails that the access prices must not be set higher than the level at which Telenor's own retail operations would have achieved a reasonable margin, given Telenor's own costs and that the retail operations purchased access from Telenor's wholesale operations on the terms Telenor offers to external access seekers.

With regard to the prices for other elements of purchase of FWA, and particularly the price of connection setup and subscription at wholesale level for each connection, in the FWA Decision Nkom takes the view that the same competition problems as for access implementation will apply. It can be seen that, Nkom considers it appropriate to conduct a separate consultation process concerning this type of price control and any requirements regarding accounting separation pursuant to Section 4-9 of the Norwegian Electronic Communications Act.

1.3 Notification of price regulation and accounting separation for FWA

On 13 October 2020, Nkom notified that Telenor will be required to offer access to FWA at prices which entail that the access seeker will not be subject to margin squeeze. To ensure compliance with this obligation, Nkom will conduct margin squeeze tests. The notification states that Nkom will apply the method and principles for the margin squeeze test that apply to VUA fibre, cf. Chapter 7.3.4.3 and Annex 3 of the Market 3b Decision, and that Nkom will conduct a separate consultation on the specific design of the margin squeeze test for FWA before a decision on price regulation for FWA is made.

Nkom received comments from GlobalConnect and Telenor concerning the notification of margin squeeze regulation for FWA.

GlobalConnect requested that Nkom instead impose cost-oriented price regulation that ensures sustainable competition. In the event that Nkom upholds the imposition of a ban on price discrimination, Nkom must as a minimum ensure financial replicability through adjustments to the margin squeeze test and by requiring any price changes at the retail and/or wholesale level to be approved before they are implemented (ex-ante).

Telenor stated that there is no basis for price regulation of FWA. In Telenor's view, accounting separation is a better and more proportionate instrument than a margin squeeze test.

Nkom assessed the comments in the first consultation round and concluded that there was still a basis for margin squeeze regulation of FWA. Nkom therefore prepared a margin squeeze model and associated principles.

On 15 June 2021, Nkom notified which principles will apply to the margin squeeze regulation for FWA. Furthermore, Nkom notified that Telenor will be subject to an accounting separation requirement for FWA in Market 3b. Nkom received comments on the notification from eRate, Fjordkraft, GlobalConnect, JetNett, NextGenTel, RiksTV and Telenor. In addition, Nkom received remarks concerning the consultation responses from eRate and Telenor. Telenor has also commented on the margin squeeze model in emails dated 26 and 27 August 2021.

2 Summary of consultations

2.1 Lacking analysis

Consultation remarks

Telenor believes that the analysis on which the notified price regulation is based lacks both legal and factual grounds. Nkom provides no real grounds for why the proposed price regulation is appropriate or necessary, since the market reality is that there is competition in the wholesale market for FWA. Telenor believes that the time which has elapsed from the previous market analysis, the number of decisions for changes and additions to the regulation in Market 3a/3b, and the stated objective of minimum regulation, indicate that Nkom must justify the conclusions drawn concerning the appropriateness of imposing price regulation of FWA.

Nkom's assessment

Nkom disagrees that the analysis lacks legal and factual grounds. In the notification of 13 October 2020, Nkom has assessed whether there are grounds for price regulation of FWA, and furthermore what type of price regulation is appropriate and proportionate. The assessment was made in the same way as the assessments in the Market 3b Decision of the basis for price regulation of other forms of access. The assessments show, among other things, that NextGenTel has entered into an agreement with Telia concerning wholesale access to FWA and that wholesale sales from providers other than Telenor may to some extent have a

disciplinary effect on Telenor's wholesale prices for FWA. This is taken into account in the design of the price regulation for FWA through the choice of margin squeeze regulation. Nkom disagrees with Telenor that wholesale offers from companies other than Telenor as such indicate that there is no basis for price regulation of FWA.

2.2 Geographical coverage for FWA

Consultation remarks

eRate and **Fjordkraft** believe that it must be possible to offer FWA throughout Norway and not just where Telenor defines that it must be available. Wholesale access to FWA should be granted independently of Telenor's fibre roll-out. It is not possible for a service provider to achieve a positive margin without FWA being available throughout the country, in order to achieve a sufficiently large customer base.

In its comments on the consultation responses, **Telenor** points out that a requirement for an increased coverage area is not relevant for the topic covered by Nkom's decision notification. Requiring Telenor to strengthen the mobile network in areas where the company has already built fibre and also has no plans to offer FWA in the retail market is unreasonable.

Nkom's assessment

The access obligation for FWA and its scope are laid down in Nkom's decision of 2 September 2020. It is apparent that addresses where FWA is available must be the same for access seekers and for Telenor's retail activities. The question of the area of cover for FWA is not relevant in relation to decisions on price regulation for FWA.

2.3 Price regulation for FWA

Nkom's notification of decision

Nkom has notified that Telenor will be required to offer access to FWA at prices which entail that the access seeker will not be subject to margin squeeze.

Consultation remarks

GlobalConnect requests that Telenor be subject to a cost orientation requirement based on price-minus or cost-plus, possibly combined with a price cap. An obligation that entails a margin squeeze prohibition is not appropriate to promote sustainable competition in the relevant market. GlobalConnect believes FWA has more in common with copper-based broadband access, since both wholesale products are achieved via a fully developed nationwide access network. No significant further investment is required in order to offer FWA.

Furthermore, GlobalConnect believes that a cost orientation requirement for FWA will not be to the detriment of Telenor's or other players' investment incentives. GlobalConnect points out,

among other things, that it is the demand for mobile services, and not FWA, that is the key driver of investments in mobile networks. Furthermore, GlobalConnect believes that it is the decommissioning of the copper network, and not competition from access seekers, that determines Telenor's investment decision in an area. GlobalConnect does not agree either that wholesale sales of FWA from other providers might have a disciplinary effect on Telenor's wholesale prices. Experience so far shows that wholesale sales from Telia have not affected Telenor's pricing, and there is little reason to believe that this will change in the future.

NextGenTel believes that margin squeeze tests should be replaced with cost orientation. A key point is that FWA, like broadband in general, will be a foundation for content production and innovation. As content providers begin to offer services via FWA, as a vertically integrated provider Telenor must also be expected to bundle FWA. It is therefore important to ensure that the FWA access price is not affected by the terms achieved by Telenor in the content market. This will be achieved with regulation based on cost orientation. If margin squeeze regulation is maintained, it must be designed to make it clear that internet access (in different classes) are the products that are assessed.

RiksTV believes that the cost-plus method, possibly combined with a price cap, is the most appropriate form of regulation. RiksTV considers prohibition on subjecting access seekers to margin squeeze is an excessively mild instrument that does not take sufficient account of the access seekers.

Telenor believes that there is no basis for price regulation of FWA. Nkom has not assessed whether the criteria set out in Section 4-9 of the Norwegian Electronic Communications Act for price regulation to be imposed have been met. Nkom has neither mentioned nor assessed the competitive situation in the wholesale market for the provision of FWA based on mobile technology. Telenor's competitors are currently primarily Telia, but eventually Ice as well. Nor has Nkom assessed whether it is possible to maintain a disproportionately high price level for the product, given this competitive situation.

Telenor believes that appropriate and proportional follow-up of the market decision's non-discriminatory price requirement will be achieved by a requirement to report accounting separation for the product. Excessively stringent price regulation will weaken the incentives to invest in modern new infrastructure and entail the risk of an access price that lies below cost level.

In their comments on the consultation responses, Telenor states that regulation with a margin squeeze prohibition is consistent with well-known economic regulation theory and practical guidelines for the use of instruments, provided that there are grounds for price regulation. In a growth market with infrastructure competition, an approach that enables pricing flexibility should be chosen.

Nkom's assessment

In the notification from October 2020, Nkom has assessed various price regulation methods. A key aspect of the assessment is how different types of price regulation of FWA affect the developers' investment incentives and access seekers' competitiveness. Nkom concluded that price regulation in the form of cost orientation might have a negative influence on future investment decisions among mobile operators and any other parties wishing to build networks that can be used for FWA services. Furthermore, Nkom believes that the competition in the wholesale market might have a certain disciplinary effect on Telenor's wholesale prices for FWA.

Nkom disagrees with GlobalConnect that the copper network and the mobile network can be compared in the way referred to. No new investments are made in the copper network. The mobile network is still subject to investment in both coverage and capacity. FWA as a service is a driver of increased capacity requirements and thereby also an investment driver. The competitive situation in wholesale markets is also different. For a potential access seeker in Market 3b wishing to offer FWA or other forms of wireless broadband, it might be possible to enter into wholesale agreements with mobile operators other than Telenor.

Nkom has made assessments related to the choice of price regulation method, as referred to above. Nkom believes that investment incentives will differ according to whether Telenor is subject to cost orientation or margin squeeze-related requirements.

So far, Telenor's FWA products solely consist of internet access. The margin squeeze test will therefore only include these products. If Telenor gradually expands its offering with content services (e.g. TV), Nkom will make a concrete assessment of possible changes in the margin squeeze model and associated principles with regard to whether content services should be included in the margin squeeze model, cf. Chapter 2.5 below.

Nkom disagrees with Telenor that Nkom has not assessed whether the criteria in Section 4-9 of the Norwegian Electronic Communications Act for imposing price regulation have been met. Telenor's FWA services should be regarded as fixed access based on radio technology and are part of Market 3b, ref. the market analysis. In Chapter 2.1 of the notification of 13 October 2020, Nkom makes reference to the market analysis and assessment of competition problems in Chapter 5 of the Market 3b Decision. It is stated that the competition problems may lead to, among other things, price squeezes and excessive prices for Telenor's competitors in the downstream market, cf. the criteria in Section 4-9 of the Norwegian Electronic Communications Act, and Nkom has thus concluded that it is necessary to introduce an obligation for Telenor concerning price regulation of access to FWA.

Nkom agrees with Telenor that excessively stringent price regulation might weaken investment incentives for modern new infrastructure. Nkom believes, however, that the chosen margin squeeze regulation ensures sufficient flexibility for Telenor with regard to pricing and

safeguarding investment incentives. In reality,Telenor's wholesale prices will be controlled by Telenor's pricing in the retail market, and Nkom cannot see that any such regulation would entail the particular risk of an access price below cost level. We also refer to how in their comments on the consultation responses Telenor emphasises that price regulation with a margin squeeze prohibition corresponds to well-known economic regulation theory.

On this basis, Nkom maintains that there are grounds for price regulation of FWA in accordance with Section 4-9 of the Norwegian Electronic Communications Act and that a margin squeeze prohibition constitutes appropriate regulation that adequately safeguards Telenor's and other players' investment incentives.

2.4 Principle 1 – Efficiency level and scale adjustments

Nkom's notification of decision

The notification states that Nkom will use an adjusted EEO approach. Nkom will assume that the modelled alternative provider has a market share of 15% of the available FWA accesses connected to Telenor's mobile network at any time. For cost items for which the discrepancy between Telenor's data and the relevant alternative providers' data is greater than 10%, Nkom will adjust Telenor's data set.

Consultation remarks

JetNett believes that the market share used as the basis for the efficient alternative provider must be lower than 15% to begin with. The customer base that Telenor has already built up before it was possible for providers to join the market is effectively shielded from competition. This amounted to 79,000 customers in the first quarter of 2021. These customers must be subtracted from the total basis, so that the efficient alternative provider cannot be expected to have a market share exceeding 5%, until any change in the game rules for locking of equipment.

NextGenTel believes that it is too ambitious to assume that competitors would each be able to achieve a 15% market share, as envisaged in the adjusted EEO.

RiksTV believes that it is difficult to envisage one access seeker alone being able to achieve a 15% market share in the FWA market. To be able to achieve efficient, sustainable competition, in the same way as for the MVNO access forms and service providers in Market 15, providers with lower market shares must be facilitated. For these markets, reference operators are defined with 3% in the private markets. RiksTV believes that this is more likely, based on the assumption that there will be several providers competing for the same market.

Telenor believes that none of the situations described in the Commission's recommendation to justify exemptions from the EEO principle exist for FWA. The reference to Telenor's core network is not relevant since the access seekers do not need to copy Telenor's core network.

Nkom has not specified Telenor's breadth and scale economies for customer service and telemarketing.

Telenor furthermore believes that the price for the end user on switching antennas determines whether this is a barrier to switching, and not the physical switch itself. Low prices for establishment/installation entail that there are no significant switching barriers for customers that already have an FWA product, and all customers (both new and established) are available for access seekers. Telenor also expects the number of FWA accesses to increase significantly in the coming years. Together with low switching barriers, this factor entails that the assumption of a market share of only 15% of actual FWA customers in Telenor's network is based on failing assumptions and appears to be unreasonably low.

With regard to the principle of adjustment of cost items with more than 10% deviation, Telenor points to how the other players from whom Nkom requested data may have a different distribution/weighting of fixed one-off costs, fixed ongoing costs and variable costs than Telenor. This becomes highly discretionary and unpredictable when no methodology to assess the data basis is specified by Nkom.

In their comments on the consultation responses, Telenor states that other players' wish for a lower market share than 15% is not related to socioeconomic efficiency and should not be accepted by Nkom. It is problematic, and contrary to the purpose of the Norwegian Electronic Communications Act, when price regulation is designed to ensure that every service provider can be profitable.

Telenor furthermore believes that the main reason Nkom has advocated setting the market share as low as 15% lapses with the requirement to reuse end-user equipment, as notified by Nkom. Any such requirement will also entail a need for adjustments to the calculations in the proposed price regulation.

Nkom's assessment

As assessed by Nkom, neither JetNett's, NextGenTel's nor RiksTV's comments that the efficient alternative provider's market share should be set lower than 15% contain new elements that were not taken into account in Nkom's overall assessment on which the determination of this market share in the notification of decision was based. Nor can Nkom see that Telenor's claims that a 15% market share is based on failing assumptions and appears to be unreasonably low contain any new information providing a basis for increasing the market share in the margin squeeze model.

With regard to RiksTV's comment that in the margin squeeze model that underlies the price regulation in Market 15, a market share of 3% has been set, Nkom points to how these two market shares are not directly comparable, since market shares for mobile communication in Market 15 and for FWA in Market 3b are calculated in different ways. In the Market 15 regulation, an efficient alternative provider's market share is calculated as the number of mobile

customers as a percentage of the total customer volume in the mobile market, while the market share in the margin model for FWA is calculated as the number of FWA customers as a percentage of the number of FWA customers in Telenor's network. Nkom cannot see a need to specify this in greater detail in the principle document.

Nkom does not share Telenor's opinion that deviations from the principle of adjusted EEO are not justified for FWA. Nkom therefore maintains that adjusted EEO must be used as the basis for margin squeeze tests for FWA and refers to the grounds for this in Chapter 3.1 of the principle document. Based on Telenor's comment that access seekers do not need to copy Telenor's core network, Nkom has specified in the principle document that it is Telenor's use of its established production, sales and marketing apparatus to offer various types of standardised broadband products that constitutes the breadth and scale economy in this context.

Nkom maintains that an antenna switching requirement will constitute a switching barrier that may limit competition for existing FWA customers, irrespective of whether Telenor operates with discounted establishment/installation prices. Nonetheless, the antenna switching requirement on switching FWA provider will entail an additional cost, which either the new provider or the customer in question must cover. Any such additional cost will therefore, regardless of any discounted prices for establishment/installation, represent a switching barrier in the FWA market that can contribute to limiting competition. Furthermore, installer visits and agreements on this will entail an additional complication for the customer. Nkom also refers to the notification of decision of 15 July 2021 on the establishment of a regime for reuse of antennas for FWA provision, where this is discussed and justified in further detail.

Nkom agrees with Telenor that Nkom's notified order to establish a regime for reusing antennas for FWA provision might affect access seekers' customer growth and market share. The intention behind the notified order is precisely to facilitate more actual competition for the existing FWA customers in Telenor's network, by reducing switching costs. It is also currently uncertain what effect any such regime for reusing antennas might have on an efficient access seeker's opportunities to achieve an increased market share. It will also take some time for any such a new regime for the reuse of antennas to be in place. Nkom will at a later point in time be able to assess whether there are grounds for making changes to the assessments that form the basis for the established market share of 15%.

With regard to Telenor's comment that the methodology related to the principle of adjustment of cost items with more than 10% deviation is too discretionary and unpredictable, Nkom will firstly point out that this principle also forms the basis for the established margin squeeze model for VULA fibre in Market 3a (and formerly VUA fibre in Market 3b). Nkom furthermore believes that it is reasonable to assume that both Telenor's and access seekers' distribution/weighting of fixed one-off costs, fixed ongoing costs and variable costs will be fairly stable over time. This would indicate increased predictability relating to the effects of the principle of adjustment of cost items with more than 10% deviation after the first margin squeeze tests for FWA have been

undertaken. Against this background, Nkom does not agree with Telenor that the methodology related to the principle of adjustment of cost items with more than 10% deviation is too discretionary and unpredictable to be the basis applied in the margin squeeze model for FWA.

2.5 Principle 2 – Relevant retail services

Nkom's notification of decision

Nkom has notified that the relevant retail products in the margin squeeze test are the existing FWA retail products offered by Telenor at any time.

Consultation remarks

RiksTV believes that it should be made clear that only internet accesses at different speeds are considered to be relevant FWA retail products. It will be very unfortunate if any Telenor bundled products are included in the margin squeeze tests. Telenor could then in principle serve as a gatekeeper and determine how the services are to be offered in the FWA market.

Telenor assumes that the principle means that any TV product will be included if it is part of the portfolio. This should be clarified.

Nkom's assessment

Principle 2 shows that the relevant retail products in the margin squeeze test are the existing FWA retail products offered by Telenor at any time Today's retail offering from Telenor solely includes internet access at various different speeds. The margin squeeze test will therefore solely include such products. As Nkom understands it, it is not certain either that Telenor will launch its own TV product aimed at FWA customers in the retail market. It is also uncertain whether any TV product will be offered as an "over-the-top" service or as a more integrated service with multicast function. If it should emerge that, sometime in the future, Telenor is to launch a TV product, Nkom will have to perform a concrete assessment of whether, and if so how, this TV product must be taken into account in the FWA margin squeeze model. Any such assessment will be subject to consultation in accordance with normal practice before Nkom makes any decision on changing this margin squeeze principle.

In principle 2, Nkom has clarified that only internet access via FWA is included in the margin squeeze test.

2.6 Principles 3 and 4 – Flagship products and aggregation level

Nkom's notification of decision

The notification stated that the margin squeeze test will be performed for the commercially most attractive FWA products (flagship products). Nkom will apply a portfolio approach to the margin

squeeze test. In the first two margin squeeze tests, all Telenor retail products in both the private and business segments are included in the portfolio of flagship products.

Consultation remarks

GlobalConnect believes that the proposed margin squeeze principles will not ensure that an efficient alternative provider can compete with Telenor for business customers. A portfolio approach will enable Telenor to set prices whereby access seekers that only serve the business market must sell at a loss.

NextGenTel believes that the portfolio approach gives Telenor too much flexibility.

RiksTV emphasises the need for the expanded mandates under principles 3 and 4 to be applied if there is extensive use of bundling in the FWA market. Margin squeeze tests of individual flagship products must then be performed and then single-play products in the form of internet-only subscriptions.

Telenor proposes that all of Telenor's retail products for FWA be included in the margin squeeze test on a permanent basis. This will create predictability for Telenor with regard to which products Nkom will test, thereby ensuring predictability for the obligations imposed. Furthermore, a margin squeeze test of all Telenor retail products will eliminate the need for accounting separation and gross margin testing, thereby reducing the resources devoted to regulatory reporting.

Telenor refers to the reservations set out in principle 3 and principle 4 and believes that it is unclear how, and how far into the future, Nkom intends to set subscription figures and make its own definition of flagship products to be tested. The wordings should be removed or at least clarified.

Nkom's assessment

In Nkom's assessment, neither Global Connect's, NextGenTel's nor RiksTV's consultation comments contain elements that make it necessary to disregard a portfolio approach in margin squeeze tests for FWA. Nkom is committed to balancing competition considerations and investment incentives when setting principles and methodology for price regulation of Telenor's FWA wholesale product. A portfolio approach will ensure an opportunity for access seekers to compete for FWA customers in the retail market, while safeguarding Telenor's investment incentives.

With regard to Telenor's consultation comment on the use of flagship products, Nkom has found reason to make a more detailed assessment of whether it is more appropriate to base the margin squeeze tests for FWA on all of Telenor's retail products in both the private and business segments on a permanent basis, and not only in the first two margin squeeze tests that Nkom envisaged in the notification of a decision.

In the discussion of principle 3, the notification states that after the first two tests, Nkom will make an assessment of sales and product development, and then decide whether all of Telenor's retail products should continue to be included in the test, or whether it is appropriate and sufficient to define flagship products at that time. After a renewed assessment, Nkom has concluded that it is not necessary to postpone this decision until after the first two tests have been completed. In Nkom's assessment, a margin squeeze test based on all of Telenor's retail products in both the private and business segments will be predictable and also in the interests of access seekers. For as long as solely internet-only products are included in the test, the product portfolio will be relatively straightforward and it will be easier to conduct a test with all products than if different types of bundled products were to be included. Nkom has therefore concluded that principle 3 should be amended so that all of Telenor's retail products in both the private and' business segments are included in the FWA margin squeeze test on a permanent basis.

As a general rule, the margin squeeze test will include all FWA products supplied by Telenor in the retail market. If some products are no longer sold, but are still delivered to existing subscribers, Nkom will assess whether some or all these products should be excluded from the test. In this assessment, Nkom will give weight to how the test must give the best possible picture of the competition situation in the retail market at the time of the test.

When all Telenor retail products are included in the margin squeeze test on a permanent basis, Nkom shares Telenor's view that the need for accounting separation will lapse. When it comes to the need for gross margin testing, on the other hand, Nkom cannot see that a change from flagship products to include all of Telenor's retail products in the test will cause the need for gross margin testing to lapse. In Chapters 2.11 and 2.13 below concerning gross margin tests and accounting separation, respectively, this is discussed and justified in further detail.

Since Nkom has moved away from the flagship concept and instead chosen to test all retail products, the need to assess the content of the portfolio of flagship products and for possible discretionary determination of subscription figures also lapses. The text in question has therefore been removed from the principle document.

2.7 Principle 5 – Discounts

Nkom's notification of decision

The notification states that discounts and promotions must be taken into account for the relevant period of time on calculating the annualised monthly revenue.

Consultation remarks

JetNett points out that all discounts given in the market, both for subscriptions and for start-up costs, must be taken into account. The latter include installation costs, equipment that the

customer needs to be able to use the FWA service, and discounted financial costs (interest and fees) on repayment over time. The discount level for the current year must be taken into account in the calculations, to make the test effective and appropriate to support competition, in line with the purpose.

Nkom's assessment

Nkom agrees with JetNett that all discounts granted in the market must be taken into account, but cannot see any need to specify this in further detail in the description of principle 5 in the principle document, as this is already apparent from the text describing this principle.

With regard to what JetNett in its consultation response refers to as "discounted financial costs (interest and fees) on repayment over time", Nkom remarks that it is stated in principle 5 that all one-off price elements in the retail market are distributed over a period equivalent to the average customer lifetime in the margin squeeze model. Nkom would also point out that any discounts with which Telenor operates in the retail market that are linked to partial payment of one-off price elements must also be taken into account in the model. It also follows from principle 9 that fixed one-off costs/investments are annualised in the model on the basis of a weighted average cost of capital (WACC). This entails that financial costs are already taken into account in the margin squeeze model.

2.8 Principle 7 – Customer lifetime

Nkom's notification of decision

In the notification, Nkom has assumed an average customer lifetime for FWA of 60 months.

Consultation remarks

JetNett believes that a customer lifetime of 60 months is significantly higher than could be expected. The customer lifetime for FWA must be assumed to be significantly shorter than for a fibre access, and JetNett believes it should be 36 months. At the same time, 5G-compatible retail equipment is subject to rapid development. It is reasonable to assume that the service life of the equipment for customers will be shorter, so that the start-up costs for a new customer must be distributed on a shorter period than 60 months.

Nkom's assessment

Nkom cannot see that JetNett's proposal to reduce the customer lifetime from 60 to 36 months is based on factors that Nkom has not already taken into account as part of the overall assessment as the basis for the determination of a customer lifetime of 60 months. Nkom would also point out that the customer lifetime might be changed if historical figures for actual customer lifetime for FWA indicate that this is necessary. This is also stated in the principle document.

2.9 Principle 9 – Reasonable return on invested capital

Nkom's notification of decision

The notification states that Nkom will assume a WACC in the margin squeeze model based on Nkom's current decision regarding the WACC for fixed networks.

Consultation remarks

JetNett believes that considerations regarding the return on invested capital should be viewed in the light of various providers' access to inexpensive capital. For a new provider, access to capital is significantly more expensive than for an established player. Telenor's repayment solution should be taken into account in the margin squeeze model, and the required rate of return must be 50% higher than assumed in the WACC.

In its comments on the consultation responses, **Telenor** argues that the key factor in capital costs related to any discounts is that it must in such case be assessed whether there are equivalent sources of capital that must also be taken into account in the calculation of the capital requirement, including the time of payment from customers in relation to the time of payment to Telenor. The need for a higher capital requirement or a shorter reference period must in such case mean that both the model chosen (adjusted EEO), and the principle for the reference period, must be changed. Telenor will not recommend this, since it would entail further distancing from the recommended methodology in European guidelines.

Nkom's assessment

Nkom's current decision on WACC in fixed networks is based on assessments made by Professor Thore Johnsen, and these are included in the decision. The assessments state that it must be possible to use the required rate of return for all Norwegian fixed network activities (including FWA), irrespective of the company's size and age, and therefore also for new activities[1].

Nkom does not believe that any new elements have emerged to indicate a required rate of return higher than the current WACC for providers other than Telenor.

2.10 Principle 10 – Downstream costs

Nkom's notification of decision

In the notification, Nkom has described which cost elements are included in the margin squeeze model.

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[1] *Cf. Chapter 6 of "Kapitalkostnad for norsk telekom fastlinjevirksomhet i 2016" (Capital cost for Norwegian telecom fixed line activities in 2016). Revised, 30 August 2017.*

Consultation remarks

GlobalConnect states that Nkom must ensure that the model takes account of the inclusion of all of the cost elements on which wholesale customers rely on being able to purchase in order to use the service, including co-location, backhaul to NNI point, and SIM card charge.

Nkom's assessment

The margin squeeze model includes all cost elements that are relevant for Telenor's FWA wholesale customers, as costs associated with the purchase of the FWA wholesale product from Telenor and also wholesale customers' own costs associated with offering FWA in the retail market. Nkom can confirm that the three cost elements specifically referred to by GlobalConnect in its consultation comments are taken into account in the margin squeeze model.

2.11 Gross margin requirements

Nkom's notification of decision

The notification states that Nkom will set the requirement of a gross margin greater than or equal to zero for all of Telenor's standalone FWA products that are on sale in the retail market.

Consultation remarks

eRate and **Fjordkraft** believe that the positive gross margin requirement is too weak to be able to achieve healthy business operations. Access seekers must lie at, or preferably below, Telenor's retail prices, in order to achieve growth in the number of customers. This entails that access seekers will normally achieve a positive gross margin, even if Telenor marginally passes the margin squeeze test.

GlobalConnect believes that a positive gross margin requirement does not prevent Telenor from excluding access seekers from all or parts of the business market. It is not sufficient that Nkom reserves the right to change the gross margin requirement at a later time.

NextGenTel considers it positive that gross margin requirements are set for all products. However, the requirement in the gross margin test is insufficient to protect competition. No one can survive on a gross margin of 0%.

Telenor believes that it is unclear which competition problem could be resolved with a positive gross margin requirement, and encourages Nkom to specify which competition problem has been observed after the requirement of non-discriminatory prices was introduced for FWA. It is difficult to see how any negative margin for one speed has an exclusionary effect in elements of the retail market. All elements of the retail market buy several speeds, and a negative margin for one speed will not entail that any part of the retail market (which include a combination of speeds) will become negative. Any negative margin for a tested product will entail a need for a

greater positive margin for other tested products. Access seekers will be able to direct their sales efforts towards the products with the highest margin, and thereby have a product mix with a higher margin than for Telenor's portfolio.

Nkom's assessment

Nkom refers to how full margin squeeze tests are the main element of price regulation and emphasises that the gross margin requirement will only be a supplementary requirement to the margin squeeze test. When all products are tested, Telenor will have rather less flexibility compared to a solution in which only flagship products are tested. Nkom will nonetheless maintain a positive gross margin requirement. The requirement is set to ensure a minimum requirement for each individual product and is intended to prevent Telenor from setting very low prices for individual products that may be important for some providers or for groups of end users. This applies even though all of the products are now included in a test at portfolio level.

Telenor believes that it is unclear which competition problems will be resolved with the requirement of a positive gross margin. Nkom refers to how the gross margin requirement is one of several elements of price regulation designed on the basis of identified competition problems, cf. Nkom's assessment under Chapter 2.3 above. Nkom believes that this also applies even though all products will now be included in the margin squeeze test.

2.12 Ex-ante margin squeeze test

Nkom's notification of decision

Nkom notified that, prior to price increases or other changes and on the launch of new FWA products in the retail market, Telenor must submit documentation to Nkom with details of margin squeeze tests and/or gross margin tests that have been passed. Telenor may implement the price changes when the necessary documentation of passed margin squeeze tests and/or gross margin tests has been submitted to Nkom.

Consultation remarks

eRate and **Fjordkraft** believe that it is positive that the margin squeeze test must be performed ex-ante.

GlobalConnect believes that if an ex-ante regime is to have any practical impact on Telenor's pricing, the regulation must require Nkom to actively approve Telenor's new access prices before they enter into force. GlobalConnect cannot see how the proposed method will be any more effective than the inadequate ex-post regime that Nkom has practised up to now.

Telenor points out that it is difficult to see the need to document margin if Telenor increases the retail prices, since any such price increase must nonetheless entail a margin increase.

Telenor furthermore believes that it is disproportionate to impose a documentation requirement on any price change or other changes in the products in addition to semi-annual ex-post tests, reporting of data and possibly also reporting of accounting separation with auditing requirements. Nkom may at any time request Telenor to document that the regulatory margin requirement is fulfilled, and it would be more proportionate for Nkom to request such documentation on any suspicion of insufficient margin related to a specific price adjustment.

Nkom's assessment

Nkom agrees with Telenor that there is no need to document that margin requirements have been fulfilled in the event of price increases for Telenor's retail products. The text of the decision has been corrected to make it clear that the documentation requirement applies to price reductions or other changes in the design of the products.

Nkom disagrees with Telenor that it is disproportionate to impose a documentation requirement in the event of price changes or other changes in the products, in addition to semi-annual ex-post tests. The purpose of the documentation requirement is to avoid margin squeeze situations that may persist for a relatively long period of time. The prohibition against offering access prices that put access seekers in margin squeeze is an ongoing requirement, and Nkom assumes that Telenor will nevertheless make its own assessments prior to price and product changes, and ensure that the requirement will be fulfilled. Nor can Nkom see that it would be easier if Nkom were to explicitly request Telenor for documentation on any price changes that may affect the margin picture.

Nkom also points to how an equivalent ex-ante test is imposed on the access form of VULA fibre in the wholesale market for local access to fixed access networks (Market 3a). ESA had no comment on this point in Nkom's draft decision of 15 June 2021 on price regulation of VULA fibre. Nkom thus also disagrees with GlobalConnect that the proposed ex-ante test method will not be more effective than solely using an ex-post test.

2.13 Accounting separation

Nkom's notification of decision

Nkom notified that Telenor will be required to prepare accounting separation for FWA.

Consultation remarks

Telenor refers to how Nkom imposes a half-yearly margin squeeze test on the portfolio of flagship products (which for the first two runs is for the full portfolio), as well as the requirement of gross margin testing for all other products. This makes it difficult to see how an order for accounting separation can give Nkom relevant new information and how such an order can be proportionate.

Nkom's assessment

As can be seen in Chapter 2.6 above, after a renewed assessment, Nkom has concluded that all of Telenor's retail products must be included in the margin squeeze test on a permanent basis. Since all retail products are included, Nkom believes that accounting separation will not provide significant additional information beyond what will emerge through the margin squeeze test. Nkom will therefore not impose any requirement on Telenor to prepare accounting separation for FWA.

2.14 Sanctions for infringement of the regulation

Consultation remarks

eRate believes that the regulation must take account of repayment of excessive prices and price corrections. If Telenor fails to pass a margin squeeze test, the post-settlement must include the excessive price difference, a compensation, and a fine for the infringement, so that it is not worthwhile to defer the price change by paying the excessive price when Telenor does not pass the test.

Nkom's assessment

Infringement of the margin squeeze prohibition for FWA will be enforced as described in sections 386 to 399 of the Market 3b Decision. This is stated in a new section 410k, as stated in the notification and included in the updated Market 3b Decision. The sanctions on any infringement of the price regulation for FWA will be the same as on any infringement of the price regulation for VULA fibre in Market 3a.

2.15 Proportionality assessment

Consultation remarks

Telenor believes it is unclear why Nkom believes the test safeguards Telenor's investment incentives. Nkom should also assess how the price regulation affects the other network operators' investment incentives.

Furthermore, Telenor believes that there will be no synergies on reporting data for fibre and FWA, respectively. It is not the scheme that requires resources for data collection, but the data collection itself. Telenor also expresses how it is desirable from a practical standpoint that data deliveries for various regulatory purposes do not overlap in time, since often the same resources must perform and quality assure the data collection.

Telenor also believes that there are no synergies either from preparing accounting separation for fibre and FWA, respectively.

Nkom's assessment

Nkom cannot see how it should be unclear why Nkom believes that the chosen margin squeeze regulation safeguards Telenor's investment incentives. The notification of 13 October 2020 includes a comprehensive assessment of margin squeeze regulation as a method, compared to investment incentives for both Telenor and other FWA providers. Furthermore, Chapter 3.4 of the principle document included in the notification of 11 June 2021 contains a discussion of the design of the test, and this shows that Nkom will impose a portfolio test that provides pricing flexibility for Telenor and thereby safeguards the investment incentives. In this context, we also refer to how Telenor itself emphasises in its comments on the consultation responses that a regulation with a margin squeeze prohibition is in harmony with well-known economic regulation theory and practical guidelines for the use of instruments, and that in a growth market with infrastructure competition, an approach that enables pricing flexibility should be chosen.

Nkom understands that it is the actual data collection that is resource-intensive for Telenor. At the same time, Nkom believes that since Telenor has been subject to margin squeeze regulation for VUA/VULA fibre for a long time and has an established scheme in relation to reporting, etc., it will be less burdensome for Telenor to establish the equivalent for FWA than would be the case if this was a new type of regulation to consider.

After dialogue with Telenor, Nkom has changed the timing of the performance of the margin squeeze tests for FWA, so that these do not coincide with the margin squeeze tests for VULA fibre. The tests for FWA will normally be conducted in May and November, and Annex 8 has been updated accordingly.

As can be seen in Chapter 2.13 above, the accounting separation requirement lapses, and Nkom has therefore removed the discussion of this in the proportionality assessment.

2.16 Comments on the margin squeeze model

Consultation remarks

In e-mails of 26 and 27 August 2021, **Telenor** has made the following comments on the margin squeeze model:

1. Nkom mainly uses prices/values at the end of the test period as input for the model (retail prices, wholesale prices and promotion, etc). At the same time, Nkom uses the average number of customers as a starting point for modelling the customer structure for the tested operator. This differs from the methodology used in the VULA model and the margin squeeze model for mobile. In Telenor's view, input for the model should be based on values at the end of the period, to calculate the margin at the time of testing.
2. Nkom assumes that the initial costs of the product have a lifetime of five years, equivalent to the customer lifetime. In Telenor's experience, this is not reasonable;

customers who enter into wholesale agreements with Telenor and invest in their own network equipment have agreements with a longer duration than this. The FWA product must also be expected to have a lifetime beyond five years, so that the initial costs of producing the product can be utilised for longer than five years. Telenor therefore believes that the duration of five years is too short for "Wholesale one-off fees", "Own-network one-off fees" and "Initial product management and development costs", and that these costs should be written off over a period of ten years, corresponding to the basis for leased lines and co-location contracts in the VULA model.

3. Nkom assumes that the SIM profile price includes 200 SIM cards. Telenor can state that the minimum order volume is 5,000 SIM cards.
4. The cost of the internet service platform is distributed among FWA customers only. This platform is used by all customers with internet access at Telenor, which entails that only 4.5% of this cost should be allocated to the FWA customers (See E1. Share of Core network, IP Transit and Service platform costs that should be allocated to FMB: FMB traffic: % of total internet traffic).
5. Telenor has reported maximum capacity and total cost for its own "core network". Large parts of this network are used to produce the FWA product and are included in the wholesale product. An access seeker will therefore not have the same core network scope and costs as Telenor. The reported cost therefore cannot be used in the margin squeeze model. Telenor can, if required, calculate and report a cost for the defined core network based on the costs we observe in our core network.
6. Nkom has assumed a Capacity utilisation factor of 80%. Telenor finds that increased capacity is delivered at a capacity utilisation rate of around 90%, and believes that an equivalent assumption should be included in the margin squeeze model.

Nkom's assessment

1. The memorandum of principle states that Nkom will apply current prices at the time of the test. The memorandum of principle also shows that if the size of discounts has varied within the relevant time period, Nkom will perform a discretionary assessment of which discount level best reflects the current discount at the time of the test. Nkom sees no reason to change this principle. With regard to the number of customers, the memorandum of principle does not specify whether customer volume at the time of the test or the average number of customers for the period in question is applied in the margin squeeze model. In the model that was submitted for consultation, the average number of customers in the relevant period is assumed. On the basis of Telenor's comment, Nkom has made a new assessment of this and concluded that customer volume at the time of the test should be applied in the margin squeeze model for FWA. This has therefore been changed in the model.

2. Since the FWA product is a relatively new product, there is considerable uncertainty in terms of both customer lifetime and the duration of wholesale agreements for this product. In the absence of historical figures, Nkom has in principle chosen to assume five years both as average customer lifetime and average length of wholesale agreements in the margin squeeze model. Nkom agrees with Telenor that it is not obvious that the average customer lifetime for FWA customers and the average length of Telenor's FWA wholesale agreements over time will be identical. Nkom also believes that there is currently such great uncertainty associated with both end users' demand for FWA products over the next five years and how the competition between FWA and fibre-based broadband access will develop during this period, that there is no basis for changing the estimated average length of Telenor's wholesale agreements for the FWA product from five to ten years, as Telenor states.
3. On the basis of this comment from Telenor, upon collecting data before the first margin squeeze test, Nkom will undertake further clarification in the reporting form that Telenor is asked to complete with regard to prices and minimum SIM card volume to be included in the margin squeeze model.
4. Nkom is in agreement with Telenor that it is the FWA accesses/customers' share of Telenor's total costs for the internet service platform that are to be included in the model. On the basis of this comment, upon collecting data before the first margin squeeze test, Nkom will undertake further clarification in the reporting form that Telenor is asked to complete with regard to which internet service platform costs are to be included in the margin squeeze model.
5. Nkom agrees with Telenor that any reported "core network" costs included in the cost basis for pricing the wholesale product should not have been reported as "core network" costs by Telenor. On the basis of this comment, upon collecting data before the first margin squeeze test, Nkom will undertake further clarification in the reporting form that Telenor is asked to complete with regard to which "core network" costs are to be included in the margin squeeze model.
6. In principle, Nkom has assumed a Capacity utilisation factor of 80%. This is based on experience from comparable models that Analysys Mason has developed for regulators in other countries. If, prior to the first test, Telenor can present documentation to substantiate that 90% is more correct than 80% in this context, Nkom will assess whether this documentation provides a basis for changing the Capacity utilisation factor in the margin squeeze model.

3 Price regulation for FWA

3.1 Assessment of the need for price regulation

Nkom has assessed the need for further price regulation of FWA in addition to what appears in the FWA Decision, in the light of Nkom's approach to the regulation principle for Market 3b, cf. Chapter 6.1 of the Market 3b Decision.

Nkom believes that Telenor has an incentive to set a disproportionately high price for access to FWA[2]. A disproportionately high price for establishing access might act as an entry barrier for current access seekers and thereby undermine the purpose of the access obligation. Nkom has imposed price regulation for all forms of access in Market 3b and believes that the same potential competition problems apply to FWA as to other forms of access in Market 3b.

On the basis of the market analysis, cf. Annex 1 to the Market 3b Decision, and the competition problems described in Chapter 5 of the Market 3b Decision, including potential competition problems in the absence of regulation related to discriminatory and establishment-impeding behaviour which might lead to e.g. price squeezes and excessive prices for Telenor's competitors in the downstream market, Nkom has concluded that the terms for imposing price regulation under Section 4-9 of the Norwegian Electronic Communications Act are fulfilled and that it is necessary to introduce an obligation for Telenor concerning the price regulation of access to FWA in Market 3b.

Below, Nkom will assess which method must be applied as the basis for the price regulation of access to FWA in Market 3b. The FWA decision already stipulates that Telenor will be subject to price regulation for the implementation of interfaces for access to FWA in the form of requirements for reasonable prices.

3.2 Choice of price regulation method

Nkom has imposed various types of price regulation for the forms of access that Telenor is required to offer in Market 3b. In the light of a technology-neutral market definition, Nkom therefore deems it appropriate to consider the regulation of other forms of access in Market 3b, on determining the method of price regulation of FWA.

Central access to copper-based access networks in the form of Broadband Access is regulated through price caps based on an LRIC model. This is a strict form of price regulation, and concerns access to a fully developed nationwide access network (Telenor's copper network). Provision of this form of access does not require substantial further investments.

[2] *Telenor's access prices for establishment and subscription for the individual customer relation.*

The VUA copper and VUA fibre access forms are subject to a milder form of price regulation by imposing a ban on subjecting access seekers to margin squeeze. These are forms of access that require new investments, albeit to varying degrees, either by upgrading the copper network in order to offer higher speeds, or in the form of further development of fibre-based access networks. The same applies to VULA fibre in Market 3a. The basis for the choice of price regulation method thus differs with regard to central access in the form of copper-based broadband access, or central access in the form of VUA copper or VUA fibre.

The use of instruments in the Market 3b regulation is intended to maintain the competition for services and also to support the aim of infrastructure-based competition through commercial development of high-speed broadband. It is therefore necessary to assess how various different types of price regulation of FWA affect the developers' investment incentives and the access seekers' competitiveness.

Strict price regulation of FWA, e.g. in the form of price caps or cost orientation, might have a negative impact on investment incentives for providers that build up extra coverage and/or extra capacity in mobile networks, in order to provide FWA. Even though a commitment to such price regulation will only target Telenor, as the only provider with significant market power in Market 3b, there is reason to assume that a strict form of price regulation of Telenor's wholesale provision of FWA might also affect future investment decisions of other mobile operators and any other parties wishing to build networks that can be used for FWA services. Nkom does not wish to impose obligations in this market that affect the scope and speed of the development of FWA to any significant degree.

An opposite extreme, in the form of a very mild form of price regulation of FWA, would entail that insufficient consideration is made of the access seekers. Nkom therefore does not consider any such regulation to be relevant.

The offer of FWA entails extensive use of capacity in the mobile network. At the same time, the capacity demand for ordinary mobile services is also increasing. In order to offer FWA on a large scale as a replacement for copper-based services, Telenor is building new coverage in many places and expanding its capacity in some places that already have coverage. Furthermore, Telenor has commenced the development of 5G in its mobile network. 5G will be very suitable for the provision of FWA.

In the same way as Telenor, Telia is expanding coverage and capacity in its mobile network, in order to offer FWA. Telia has also commenced the development of 5G and will be able to use this technology as the basis for its FWA provision.

Ice is building the third mobile network in Norway and so far has achieved over 90% coverage of the population. The company does not currently offer FWA, but will have good opportunities to do this, both in its 4G network and eventually by using 5G. In September 2021, Nkom conducted an auction of frequencies in the 2.6 Ghz and 3.6 Ghz bands. Altibox, Ice, Telenor

and Telia won the auction. After the auction, Altibox has announced that the company's ambition is to offer FWA during the first half of 2022.[3] Nkom therefore expects that during the current regulatory period there will be more players competing to offer FWA.

In addition, it will be possible for local players to acquire their own frequency resources through Nkom's planned allocation of frequencies in the 3.8-4.2 GHz range. The frequency band can give local providers access to frequency resources that can be used to deliver FWA and other 5G services. Nkom aims for players to apply for licenses for local 5G networks in the first half of 2022.

Competition between several FWA providers is assumed to have a certain disciplinary effect on the retail prices for FWA. During the current regulatory period there will furthermore still be an access obligation for Telenor in the copper network, and access seekers will be able to use this for their broadband provision in the retail market. In some cases, fibre-based or HFC-based access may also be an alternative for end users who are offered FWA. This competition among various different technologies can be assumed to have a disciplining effect on the retail prices for FWA, even after the end user has selected access technology and connected to an FWA provider.

On this basis, over-pricing in the retail market appears to be a smaller potential competition problem for FWA than for central access to copper-based access networks in the form of broadband access in Market 3b.

When it comes to over-pricing as a competition problem in the wholesale market, the competition situation on the access side within FWA is different from copper-based broadband. For a potential wholesale customer in Market 3b who wants to offer FWA or other forms of wireless broadband in the retail market, it might be an option to enter into wholesale agreements with mobile operators other than Telenor, if Telenor's wholesale terms are perceived as less attractive. Several players have entered into access agreements with Telia to offer traditional mobile services. Furthermore, NextGenTel has entered into an agreement with Telia for wholesale access for FWA in Telia's network. This means that the dynamics for wholesale FWA appear to differ from wholesale copper access, where Telenor's de facto monopoly position will not be challenged in the years ahead. Wholesale provision by providers other than Telenor will to some extent have a disciplinary effect on Telenor's wholesale prices for FWA. At the same time, Telenor has a head start on other mobile operators when it comes to offering FWA, and a significantly larger customer base of FWA customers as of today. Telenor's strong position in both the mobile and broadband markets, and Telenor's existing customer base in the copper network, also indicate that Telenor has advantages in the competition for FWA customers.

[3] *https://www.altibox.no/2021/10/04/5g/*

In a decision of 2 September 2020, Nkom has required Telenor to maintain wholesale access to the copper network for up to five years, unless the wholesale customers are offered relevant replacement products for copper-based access. Nkom has recently concluded that there is no basis for proceeding with the work of establishing a migration plan for Telenor's wholesale provision, and the copper network will therefore in principle remain until September 2025.

The copper network will thereby continue to be an option for access seekers in many areas, and access seekers will be able to continue their copper-based provision for a limited period going forward. This may also to some extent have a disciplinary effect on Telenor's wholesale prices for FWA.

The competition for services can be safeguarded by ensuring that efficient access seekers can profitably replicate services equivalent to those offered by Telenor through their own retail activity. This type of margin-based regulation could entail that access prices are somewhat higher than when cost orientation and price caps are required, thereby supporting the opportunity to invest in mobile networks and other wireless networks in order to provide FWA or equivalent services.

As shown above, the VUA copper and VUA fibre access forms are subject to price regulation in the form of a ban on exposing access seekers to margin squeeze. Nkom believes that access to FWA has a lot in common with these forms of access, since all forms of access require new investments, in the form of upgrading of existing networks, expanding the coverage area and/or development of new access networks. It is thereby also natural to have the same type of price regulation for the various access forms, which supports the principle of technology-neutral regulation.

Margin squeeze regulation will also be easier to achieve than a cost orientation requirement for FWA. A cost orientation requirement would entail the need for a cost model that, among other things, must take account of the distribution of costs between mobile services and FWA, which can be complicated.

Against this background, Nkom concludes that it is not appropriate to impose strict price regulation in the form of price caps or cost-orientation of FWA in Market 3b. On the contrary, Nkom will impose an obligation on Telenor to offer access prices that prevent access seekers from being exposed to margin squeeze. Any such obligation entails that Telenor must offer access to external providers at a price that enables buyers of access to replicate Telenor's products in the retail market and achieve a margin greater than or equal to zero. A margin squeeze prohibition will, according to the circumstances, safeguard investment incentives for Telenor and others wishing to offer FWA, while also ensuring that effective access seekers can compete in the retail market.

Nkom also refers to how, in the mobile network access and origination market (Market 15), Telenor is subject to price regulation in the form of a ban on exposing access seekers to margin

squeeze. Nkom believes that it is appropriate, in principle, for different applications of Telenor's mobile network to be regulated in an equivalent way in Market 3a and Market 15, respectively.

In order to ensure that a prohibition against offering access prices which expose the access seeker to margin squeeze is observed, Nkom will perform margin squeeze tests. Nkom's point of departure on designing the margin squeeze test is the method and principles for the margin squeeze test used for VUA fibre, cf. Chapter 7.3.4.3 and Annex 3 to the Market 3b Decision, and which is now used for VULA fibre in Market 3a.

Regarding the question of Nkom's enforcement measures on any breach of the margin squeeze regulation, we refer to Chapter 7.3.4.2 of the Market 3b Decision, in particular sections 386-399.

3.3 Cost accounting

In the Market 3b Decision, Nkom has assessed the need to require Telenor to prepare and report cost accounts for various forms of access. For VUA copper and VUA fibre, Nkom has concluded that there is no need to impose cost accounting. In the assessments, Nkom has referred to how, for both types of access, Telenor is subject to price regulation in the form of a ban on exposing access seekers to margin squeeze. Nkom has furthermore given weight to how all relevant costs for access seekers are included in the margin squeeze test, including costs related to subscription and establishment.

For FWA, the situation will be equivalent to that for VUA copper and VUA fibre. Nkom therefore believes that there will be no need to impose cost accounting for FWA.

4 Margin squeeze model and gross margin test for FWA

Nkom's starting point is the methodology and principles for margin squeeze tests used for VUA fibre in Market 3b, which are now used for VULA fibre in Market 3a. Nkom has made assessments of methodology and principles in the face of the competition problems that the regulation is intended to remedy, and arrived at a set of principles that will apply to the margin squeeze regulation of FWA. Many of the principles are the same as for VULA fibre, but some of the principles have been changed so that they are adapted to FWA. The margin squeeze principles for FWA are presented in a new Annex 8 to the Market 3b Decision. The annex and related Excel model and model documentation are part of this decision.

The margin squeeze test will ensure that an efficient alternative provider can replicate a portfolio of Telenor's FWA products in the retail market. According to principle 4 for the margin squeeze test for FWA, a portfolio approach is applied. This entails that the FWA products will be tested as one overall group. The portfolio approach gives Telenor flexibility in determining the prices for retail and wholesale products. This entails that Telenor will ultimately be able to set individual retail prices so that access seekers ' wholesale costs of offering an equivalent product are not covered.

To ensure that access seekers are not excluded from parts of the retail market, Nkom believes that it is necessary to set requirements for all of Telenor's standalone FWA products (internet access) that are sold in the retail market. That entails that Telenor's total monthly income associated with each FWA product in the retail market must at any time be greater than or equivalent to the related total monthly wholesale costs. Telenor must pass a gross margin test for all standalone products in the retail market.

Nkom has assessed whether different gross margin requirements should be set for products aimed at businesses and products aimed at private customers, respectively. The FWA products offered to private and business customers are relatively similar, and an efficient alternative provider will be able to offer their products to both groups of customers in by and large the same way. Cost elements and cost bases for the products will thereby also be relatively similar. This differs from fibre-based broadband products, for which TV services will be a key element of the offering to private customers, thereby entailing a greater distinction between the product portfolio offered to private and business customers, respectively.

On this basis, Nkom believes there are grounds to set the same gross margin requirement for all FWA products. In this context, Nkom has also emphasised that all FWA products will be included in the margin squeeze test, as both private and business products. Nkom will, however, be able to introduce amended gross margin requirements at a later date if the development and results from the gross margin tests should indicate that certain segments are not adequately safeguarded by the current regulation.

Nkom will ask Telenor to document that the gross margin test is passed in connection with data retrieval for the margin squeeze test, i.e. normally twice a year. On conducting the gross margin tests, Telenor must calculate the revenue for each standalone FWA product. Monthly revenue must be included, including any lease of end-user equipment. Promotions and discounts must be taken into account in the same way as in the margin squeeze test. On calculating the wholesale costs for each product, Telenor must apply the same method as for the margin squeeze test. Total wholesale costs must be included in the gross margin calculation. This includes monthly wholesale costs per subscription, as well as any other wholesale costs associated with the access seeker's agreement with Telenor concerning wholesale access to FWA.

Regarding the question of Nkom's enforcement measures on any breach of the margin squeeze regulation for FWA, Nkom will adhere to the same principles as described for VUA fibre, cf. Chapter 7.3.4.2 of the Market 3b Decision, in particular sections 386-399. Reference to these sections is included in a new Chapter 7.3.4b and appears in Chapter 8 below.

5 Ex-ante margin squeeze test

In their comments of 23 July 2020 on Nkom's draft decision to maintain access to the copper network for up to five years, the EFTA Surveillance Authority (ESA) inter alia stated the following:

> *"Following the new technical specifications of the VULA fibre service, the Authority invites Nkom to consider whether it is appropriate to move from an ex-post to an ex-ante margin squeeze test for this wholesale access service. This would result in an obligation to test any changes in the prices of existing retail offers or the prices of new retail offers launched by Telenor using the VULA fibre wholesale inputs, prior to them being offered to retail customers, in order to ensure that they do not result in a margin squeeze. Telenor's announcement in January 2019 is likely to increase the scope for competition in fibre and for this reason the Authority believes that Nkom should ensure that the migration to fibre does not result in a foreclosure of competition from access seekers."*

Nkom agrees with ESA that Telenor's announcement in January 2019 will increase the competition for fibre-based products and that it is therefore important to ensure that migration to fibre does not exclude access seekers from competition. The same will apply to migration to FWA. Nkom has assessed ESA's comments and believes that this can be taken into account appropriately by combining an ex-post margin squeeze test with an ex-ante margin squeeze test that is based on the ex-post margin squeeze test. This ex-ante margin squeeze test would make it possible to test price changes for existing retail provision and prices for new retail provision prior to their launch. Telenor is subject to a prohibition on subjecting access seekers to margin squeeze. This prohibition will apply at all times, and any such ex-ante test will better ensure that the requirement is complied with during the period between the ordinary margin squeeze tests.

The ex-ante test will entail that if Telenor is to make price reductions or other product changes to one or more FWA products, Telenor must document to Nkom that financial replicability will be safeguarded. The calculations will be made by applying the last completed margin squeeze test, with updated prices and subscription figures, and Telenor must prove to Nkom that the portfolio does not show a negative result. Telenor will also provide documentation of a passing gross margin tests for the products in question.

If Telenor is to launch new FWA products in the retail market, e.g. new speeds, Telenor must provide Nkom with documentation of passing a gross margin test.

To ensure that Telenor can implement price changes in the retail market quickly and efficiently, Nkom proposes that the retail prices can be adjusted at the same time as Telenor proves to Nkom that it has passed the margin squeeze test and/or gross margin tests.

On this basis, Nkom will make the necessary additions in a new Chapter 7.3.4b. The changes are presented in Chapter 8 below.

6 Accounting separation

Accounting separation can help to highlight any discrimination between Telenor's external wholesale customers and Telenor's internal operations. However, this is an issue that can also normally be remedied through various forms of price control, possibly in combination with cost accounting.

The need to impose an accounting separation requirement depends on the form of price regulation imposed on the relevant form of access. In Market 3b, Telenor is required to report accounting separation for VUA fibre, but not for VUA copper and broadband access. Nkom's assessment for VUA fibre states, among other things, that since the margin squeeze test imposed solely concerns the commercially most attractive fibre products in the retail market (flagship products), there will be a need to impose an accounting separation obligation that covers all of Telenor's fibre-based products in the retail market. For VUA copper, Nkom had planned a margin squeeze test that would include all relevant retail products, and Nkom concluded that it was therefore not necessary and proportionate to impose an accounting separation obligation.

Nkom has concluded that Telenor is to be subject to price regulation for FWA in the form of a margin squeeze test. The margin squeeze test concerns all of Telenor's FWA products. On this basis, Nkom believes that it is not necessary or proportionate to impose an accounting separation obligation for FWA.

7 Proportionality

Nkom has concluded that it is necessary to impose an obligation on Telenor to pass a margin squeeze test for FWA. Nkom believes that any such requirement is proportional, since the test is designed to sufficiently safeguard Telenor's and other players' incentives to invest in FWA, while also protecting the access seeker by preventing margin squeeze. Nkom believes that in overall terms the benefits exceed the drawbacks which this obligation imposes on Telenor. Nkom has taken as its starting point the methodology and principles for the margin squeeze test previously used for VUA fibre in Market 3b and now used for VULA fibre in Market 3a , and adapted these to the market situation for FWA. The test is performed on a portfolio of retail products and thereby ensures pricing flexibility for Telenor. Telenor is well-acquainted with this form of regulation and already has a scheme for the necessary reporting of data to Nkom in connection with VULA fibre. Nkom assumes that a similar scheme can be used for FWA, and Telenor's experience with the use of margin squeeze tests will contribute to reducing the burden on the company.

A requirement of a gross margin greater than or equal to zero is a safety mechanism to ensure that access seekers can compete in all parts of the market. The gross margin requirement ensures financial replicability for all products, while in combination with the use of portfolio testing, the requirement still ensures significant price flexibility for Telenor. Telenor has experience from gross margin requirements in the mobile market (Market 15) and for VUA fibre in Market 3b. Nkom believes that the gross margin requirement does not entail a disproportionate requirement beyond the requirements entailed by the ordinary margin squeeze test.

On this basis Nkom believes that the price regulation imposed for FWA is proportionate. We also refer to the assessments in Chapter 7.3.9 of the Market 3b Decision.

8 Draft decision

On the basis of Section 4-9 of the Norwegian Electronic Communications Act, Nkom requires Telenor to offer access to FWA at prices which entail that the access buyer is not subject to margin squeeze.

The decision entails that a new Chapter 7.3.4b with the following text is added to the Marked 3b Decision:

"7.3.4b Performance of margin squeeze tests and gross margin tests for fixed mobile broadband

410b. Nkom imposes an obligation on Telenor to offer access prices for fixed mobile broadband (FWA) that prevent access seekers from being subject to margin squeeze. The requirement entails that Telenor must offer access to external providers at a price that enables buyers of access to replicate Telenor's products in the retail market and achieve a margin greater than or equal to zero.

410c. To ensure that the margin squeeze prohibition for FWA in Market 3b is observed, Nkom will perform margin squeeze tests and gross margin tests. The principles for margin squeeze tests are set out in Annex 8.

410d. As a general rule, Nkom will perform margin squeeze tests twice a year. However, Nkom will also be able to perform margin squeeze tests at its own initiative where appropriate; for example if new wholesale products for FWA are introduced in Market 3b. The prohibition on offering access prices that subject the access seeker to margin squeeze will be an ongoing requirement, however, and will thus not be limited to the times when the margin squeeze tests are performed.

410e. In connection with the margin squeeze tests, Nkom will obtain relevant information from Telenor and relevant alternative providers. Reference is made to Section 10-3 of the Norwegian

Electronic Communications Act concerning the disclosure obligation. Nkom will normally set a deadline of two months for the submission of the requested information.

410f. The margin squeeze test will be performed as soon as possible after the requested information has been received, and normally within 30 days. Nkom will consider the result of a margin squeeze test without undue delay. The general principles for case consideration will be applied. Nkom assumes that the assessment of the results arising from the margin squeeze test would normally be completed within the time frames stipulated in Section 11-2 of the Norwegian Electronic Communications Act.

410g. The margin squeeze test will ensure that an efficient alternative provider can replicate a portfolio of Telenor's FWA-based retail products. The portfolio approach gives Telenor flexibility in determining the prices for retail and wholesale products. This entails that, ultimately, Telenor will be able to set individual wholesale prices so that the access seekers' wholesale costs are not covered.

410h. To ensure that access seekers are not excluded from parts of the retail market, Nkom believes that it is necessary to set requirements of a gross margin for all of Telenor's standalone FWA products that are sold in the retail market. For standalone FWA products, the gross margin must be greater than or equal to zero. That entails that Telenor's total monthly income associated with each standalone FWA product in the retail market must at any time be greater than or equal to the related total wholesale costs. Telenor must pass a gross margin test for all standalone FWA products in the retail market.

410i. Nkom will ask Telenor to document that the gross margin test is passed in connection with data retrieval for the margin squeeze test, i.e. normally twice a year. On conducting the gross margin tests, Telenor must calculate the revenue for each standalone FWA product. Monthly revenue must be included, including any lease of end-user equipment. Promotions and discounts must be taken into account in the same way as in the margin squeeze test. On calculating the wholesale costs for each FWA product, Telenor must apply the same method as for the margin squeeze test. Total wholesale costs must be included in the gross margin calculation. This includes monthly wholesale costs per subscription, as well as any other wholesale costs associated with the access seeker's agreement with Telenor concerning wholesale access to FWA. *Telenor must also assume the same volume discount as for the previous margin squeeze test.*

410j. Prior to price reductions or other product changes to one or more FWA products, Telenor must document to Nkom that financial replicability will be safeguarded. The calculations will be made by applying the last completed margin squeeze test, with updated prices and subscription figures, and Telenor must prove to Nkom that the portfolio does not show a negative result. Telenor must also provide documentation of passing gross margin tests for the products in question. On the launch of new FWA products in the retail market, e.g. new speeds, Telenor must provide Nkom with documentation of passing a gross margin test. Telenor may implement

the price changes when the necessary documentation of passed margin squeeze tests and/or gross margin tests has been submitted to Nkom.

410k. Infringement of the margin squeeze prohibition for FWA will be enforced as described in sections 386 to 399 of this decision.

410l. Infringement of the margin squeeze prohibition by Telenor possibly failing to pass the margin squeeze test or gross margin test might, in Nkom's view, be an indication that the adopted regulation is not sufficiently efficient for its purpose. Any such outcome will thereby make it relevant to change the regulation and possibly impose a requirement of cost-oriented prices on Telenor."

The decision furthermore entails that a new section 473b is added to the Market 3b Decision, Chapter 7.3.10:

"473b. Pursuant to Section 4-9 of the Norwegian Electronic Communications Act, Nkom stipulates that Telenor must offer access to FWA at prices which entail that the access seeker is not subject to margin squeeze, in line with Chapter 7.3.4b. Telenor must pass a portfolio-based margin squeeze test of FWA-based retail products and a gross margin test of FWA-based retail products, in line with Chapter 7.3.4b and Annex 8."

9 Entry into force

The decision will enter into force ...

10 Right of appeal and deadline for initiating legal proceedings concerning individual decisions

The Decision may be appealed, cf. Section 11-6 of the Norwegian Electronic Communications Act, and Section 28 of the Norwegian Public Administration Act. The deadline for appealing decisions is normally three weeks, cf. Section 29(1), of the Public Administration Act. Any appeal must be addressed to the Norwegian Ministry of Local Government and Modernisation and sent to Nkom, cf. Sections 28 and 32 of the Public Administration Act.

Nasjonal kommunikasjons-myndighet

It follows from Section 11-8(1) of the Norwegian Electronic Communications Act that lawsuits concerning individual decisions made under or pursuant to this Act must be brought within six months after the decision was made. The time limit for legal action is interrupted by an appeal against the decision and does not run as long as the appeal is being processed, cf. Section 11-8 of the Norwegian Electronic Communications Act, second paragraph.

With kind regards,

Hans Jørgen Enger
Director Service Markets

Øyvind Halvorsen
Head of Section

The document is approved electronically and dispatched without signature

Annex 8: Principles for the use of margin squeeze tests for fixed mobile broadband (FWA) in Telenor's mobile network in Market 3b.

Annex 8B: Using and updating the fixed mobile broadband (FMBB) margin squeeze testing tool

Annex 8C: Margin squeeze model Public FMBB MST v1.0